Agency Sustainability Plan

Middlesex Community College

Submitted to the
State Sustainability
Coordinating Council
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1. General Information, Impacts and Sustainability Team

1.1 Description and Scope

Founded in 1970, Middlesex Community College (MCC) is the largest community college in Massachusetts with two campuses, one in the City of Lowell; bounded by the Merrimack River, the Concord River and the canal system for which Lowell is known and another in the suburban town of Bedford on a 205-acre, heavily wooded site, on which resides a lake and surrounding palustrine, forested wetlands that are part of the Shawsheen River watershed. On these properties reside 20 buildings, consisting of 521,000 gross square feet.

We offer many paths to higher education, including 78 degree and certificate programs, hundreds of noncredit courses, career training, online courses and programs, and bachelor's degree completion programs with Salem State College. All of these programs and supporting activities can potentially effect the environment; those of greater impact lay in Nursing, Science, and Dental Assisting. Operational functions such as the provision of technology and facilities maintenance are other significant sources of energy use and hazardous waste generation.

Executive Order 438 was established in July of 2002, however MCC is no stranger to the goals of sustainability and has pursued environmentally sound practices both in partnership with State initiatives such as, Energy Conservation Measures and Executive Order #350 the Clean State Initiative, as well as independently. As a result, MCC is the second lowest emitter of carbon dioxide (CO_2) per square foot of buildings, of the fifteen community college campuses in Massachusetts. [1]

Being an institute of higher learning, our mission is both the local and globalization of the curriculum; we have a responsibility to educate the world culture in sustainability, both in the classroom and in practice.

1.2 Impacts on the Environment and Human Health

MCC on average consumes 824,000 cubic feet of water, or over 5 million gallons, for domestic plumbing, and heating and cooling requirements. These activities result in approximately 482,000 cubic feet of sewer water; (accounting for losses due to evaporative cooling and irrigation.)

Through its consumption of fossil fuels, MCC emits approximately 7,000,000 pounds of CO_2.

The College produces over 500 tons of solid waste per year. Currently only 7% is being recycled.

1. Sustainability Tracking & Reporting, College & University CO2 Emissions, 2005

The Bedford Campus, being a suburban community, has limited access to public transportation, as a result many of the 2028 full time enrolled students, and 420 full and part-time faculty and staff make single occupant trips to the campus.

There are 20 vehicles in the facilities maintenance fleet, 4 shuttle vans, and 2 staff cars consuming on average a combined 9000 gallons of gas and diesel, with 55 gallons of waste oil as a byproduct. 25 acres of parking lots and roadways requiring 120 tons of sand, salt and ice melt for de-icing, affecting habitats. 450 faculty and staff, and 5000 FTE students consume tons of paper and $29,000 of toners, annually. MCC possesses numerous acres of landscaped grounds that require pesticides, herbicides, fertilizer and a small fleet of gas powered landscaping equipment to maintain creating waste oil and greenhouse gas emissions.

In additionally, MCC runs a dental clinic as part of the dental hygiene program; amalgams and x-ray processing generate heavy metal effluent.

1.3 Operational Costs

	FY 2003	FY 2004
Electricity	4,974,253 kW	5,165,089 kW
Natural Gas	156,777 ccf	172,817 ccf
Water/Sewer	5,538,592 gallons	5,206,402 gallons
Solid Waste	~500 t	~500 t
Hazardous Waste	$9456	$4616

1.4 MCC Sustainability Team Members

John Marzec – Director of Administration for Facilities, EH&S
Steve Hatch - Dir of Operations for Facilities
Robert Bickford – HVAC
Maureen Hudson – Purchasing Coordinator
Jessie Klein – Science Labs

2. Long-Term Goals/Vision

Seek an alternative to domestic water supply, (i.e. well or canal), for two cooling towers in the Lowell Campus, thus eliminating the demand for treated water.

Consider a co-generation option for City Building to reduce fossil fuel use and increase efficiency

Pursue LEED certification for all buildings beginning with the Federal Building in 2006.

Consider alternative fuel vehicles over gas fueled fleet vehicles, where applicable, on a replacement basis.

Encourage a zero-spill policy in sciences to eliminate chemicals in waste stream

3. Short-term Actions and Priorities

Current Initiatives:

- ☑ Installing plants, materials and irrigation utilizing sustainable design at Federal Building
- ☑ Replacing 60T condensing unit with a high efficiency model having a eer of 11.5
- ☑ Established a *wake on LAN* environment for 680 student computers
- ☑ MCC is currently reviewing proposals to replace existing copiers and networked printers. Copiers will be equipped with scanning capability to encourage the use of electronic archiving and documenting in order to reduce paper and toner usage. Printers will be reviewed and consolidated to reduce existing numbers, providing reduced energy usage and disposition impacts.

3.1 Priority and Area Goals

Natural Resource Protection
Investigate feasibility of anti-icing practices on campus to reduce roadway salt use

3.2 Action Steps

Sustainable Goal	Benefits	Specific Tasks	Responsible Staff	Timeline
Increase paper recycling by 300% in the next year	Increases materials recycled from 7% to 22% of total solid waste Saves $2500 / yr	Expand recycling to mixed paper, Increase # of bins	John Marzec Steve Hatch	Begins April 2005
Add recycling of cardboard to Lowell Campus	Increase recycled materials by another 3%, Save approx. $1400 / yr	Determine type and placement of dumpster, Implement policy	John Marzec Steve Hatch	By July 30, 2005
Install irrigation & deduct meters on cooling towers	Tracks non-sewer water for usage tracking, Cost savings of $7200 / yr	Submit for meter permits, Schedule & coordinate installation	John Marzec Steve Hatch	Begun, Installation completion by June 30, 2005
Install irrigation system in Bedford	Water conservation	Obtain design services, bid installation	John Marzec Steve Hatch	By June 2006 if budget allows
Determine feasibility of well-fed irrigation at Bedford Campus	Saves energy of treating water, Reduces demand on resources	Drill test wells, Possible hydro-geologic study	John Marzec	Complete study by winter of 2005
Engage in a shared-savings contract for energy efficiency	Reduced energy usage and dependency, little or no cash flow impact	Perform system evaluation to identify areas, contact DCAM	John Marzec Bob Bickford	Award contract by August 2006

4. Management Systems and Institutionalization

The Facilities Management Department performs many functions for the college: EH&S, waste disposal, furniture disposition, water treatment, construction and renovation, purchasing, landscaping and so on. Thereby, much of the responsibility for Sustainability lies within Facilities and as such we must promote the message throughout the organization.

4.1 Integrating Environmental Impacts into Key Decision Points

A) Construction and Renovation

Include LEED Certification wording in contract language where possible

B) Facilities Maintenance

Continue to buy green and use best practices
Investigate whether an EMS is applicable to our environment

C) Purchasing

Inform on EPP, and investigate product alternatives
Incorporate language in bid and contract language

D) Open Up Discussion

Communicate Sustainability at all levels of the organization

4.2 Education and Training

Promote Sustainability awareness through staff meetings and Facilities website, publish success stories online.
Provide LEED and Green Building training to key personnel

4.3 Management Systems

- Integrate environmental responsibilities into job descriptions and performance reviews
- Incorporate environmental considerations into standard operating procedures
- Establish a written agency sustainability policy that sets a broad vision for the staff and includes specific operational guidelines for various agency operations.
- Provide the opportunity for employee feedback to review program efforts
- Include top-level management in the activity prioritization process
- Offer recognition / awards that highlight work and spread best management practices

5. Tracking Progress and Program/Plan Review

Tracking and monitoring confirms successes and closes the feedback loop.

5.1 Agency Tracking and Reporting

Establish a policy of monitoring and measurement to confirm goals, require that vendors produce the needed data in the contract verbiage, i.e. tonnage of solid and recycled waste handled, quantities and types of hazardous waste, performance data on energy projects.

Mercury and PBT reduction

MCC has eliminated all common mercury containing thermometers and reduced quantities kept on hand for experimental use

EPP

We are mandated to buy recycle paper and do so.

We have replaced all bowl, tile and counter top cleaners with H2Orange, a biodegradable, low VOC product.

Environmental Compliance

MCC has previously submitted to voluntary environmental audits

Purchase Aircuity Meter for building evaluation, optimization and IAQ monitoring and trending